Oct 27th, 2:00 PM - 5:00 PM

Technical Workshop - Methods for Closing the Gap

Canaveral Council of Technical Societies

Moderator - Dr. Martin J. Gould, Head, Electromagnetics Laboratory, Northrop Space Laboratories, Hawthorne, California

Panelists - Dr. C. W. Bemiss, Advance Planning Dept., PAA, GMRD, PAFB, Florida

Dr. J. B. Edson, Asst. to Dir., Office of Advance Planning & Research NASA, Washington, D. C.

Mr. C. E. Fisher, Head, Quality Assurance Dept., Bell Telephone Laboratories, New York, N.Y.

Lt. Col. James W. Kelly, USAF, Chief, Communications and Support Div., Range Program Directorate, AFMTC, Florida

NEW CONCEPTS FOR CLOSING "THE GAP" - WORKSHOP

The format of this panel workshop allowed the panel members to introduce themselves with a statement of their basic position and thoughts on how to close "the gap". A question/answer period followed the introductory remarks.

Dr. Bemiss, advanced planner for Pan American World Airways, the Atlantic Missile Range contractor, contended that there is need for better government-industry liaison and cooperation. This is particularly important in the projected planning area so duplication of effort is minimized and an optimum path in research is closely followed. To do this, however, it would be necessary to update some government planning practices and change some private industries' philosophy.

Mr. Fisher, of the Quality Assurance Dept. of Bell Telephone Labs., felt that it is necessary to extend the use of quality control techniques to reduce development time and to increase reliability so that fewer test flights are required to reach scientific objectives in space. Major aspects of the problem are time compression and increasing product complexity. The successful reduction of development time requires overlapping certain R&D phases with production and necessitates a technological and educational upgrading in quality engineering to minimize the developmental and production failures that have stalled some programs.

Lt. Col. Kelly, of the Air Force Missile Test Center, feels that it is necessary to change government and corporate management procedures to eliminate the many layers of negative decision makers and to improve intra-company/division communications. The resulting streamlined management procedures would allow quicker reactions and problem solving. Intra-company coordination and communications should prevent duplicate bid proposals from the same company and, in general, produce smoother, harmonious progress. Although Col. Kelly felt that little could be done with compressing the technical aspects of closing the gap, he did feel that it was mandatory to eliminate much "paper shuffling", both in government and industry, and that educational institutions should break away from the ivory tower approach and allow students to get on the job training in the junior and senior years.

Dr. Edson of the NASA Office of Advanced Research and Technology, believes that there are advantages to having "technologists on tap." These individuals or groups would go from one project to another operating on the "firemen" approach of putting out one technical "fire" completely and then going to the next. This would prevent perpetuating of many "dead horses".

The following is a narration of the question/answer period that followed the introductory statements.

The national space programs are generating a new kind of industrial institution which Dr. Edson calls "ART-Industry." Previously, in the classical school of management, a parent company would develop a new technical idea on a proprietary basis, incorporate it into a new product, and, after establishing a market, spin the activity off as a self-sustaining manufacturing subsidiary.

In contrast, the "ART-Industry" of today produces an intangible; new, useful scientific and technical information, that is, new "art." This information is produced for profit in a competitive market with the Federal Government as purchaser. The information is then usually available for use by Government contractors, and usually by any other company that is interested. The net result is acceleration of national progress.

One hindrance to the contractors performance in many areas, increased complexity of the technical task notwithstanding, is the increased weight of numbers, management layers and committees of technical management. From the comments made, and from the various organizational charts, it is apparent that this is not only true for contractors, but for the contracting agencies (government) as well. For example, one Air Force requirement for equipment of considerable scope had to go through six layers of approving strata to the Senate Armed Forces Subcommittee, including a Navy man. When the requirement was finally approved, the building to house the equipment was disapproved. Exit equipment until next fiscal year.

Some consideration was given to the desirability of a theoretical "black box" that would eliminate the human element from the field of management approval strata. This black box would eliminate the human mind in that it would give answers - be they "yes" or "no" - and eliminate many additional problems raised by the human brains of the management interfaces.

The philosophy of a financially losing Study Contract was commented on. The concensus was that a company is willing to take a loss on the contract and invest some company funds solely to get a chance at a remunerative "hardware" followup. Any skimping on the study could be covered in the hardware contract by CCN's. Should the contract call for prototype hardware, the situation could again occur, as one panelist described a past incident. "They (the contractor) came in and set a box down and stated, 'This meets the specification'. You couldn't prove that it did not because it represented the latest development in the state of the art and a more accurate measurement system did not exist with which to check it. Chances are that the contractor could not prove it did because that was the state of the contract." Obviously, this situation is unhealthy and must be improved.

The USSR has an Academy of Sciences that determines the field(s) of scientific endeavor that the country's net talent should participate in. By using a "scouting and patrolling" philosophy, a particular area may be investigated and the successes in that field can be exploited

to serve the State's needs, be it for world opinion or furthering military development. When the State objective is set forth, all of the bodies and brains required to meet the quota set forth are funneled in this one direction. In two years they are pulling abreast, technologically, and in two more, they are ahead with the stated policy still clearly in focus. In the USA, it is obviously most difficult, if not impossible, to plan the research path for the "Big Chiefs" of industry. Desirably there is an alternative between the "Big Brother - 1984" approach and the less-than-well coordinated manner we are proceeding in now.

Considerable discussion was given to "middle management". The main criticism of this group was the lack of competency in some cases and, most of all, the lack of willingness in wanting to gamble or take a chance. The former possibly gave birth to the committee, i.e., an incompetent individual who didn't quite have the capability, ability, or training to perform at the level that he was employed. Consequently, he called a meeting for conference and the conferees made the decision for him.